

Application Serial No. 10/581,951
Reply to Office Action of January 6, 2010

PATENT
Docket: CU-4849

REMARKS

In the Office Action, dated January 6, 2010, the Examiner states that Claims 1-3 are pending and Claims 1-3 are rejected. The Applicant submits that the rejections are overcome by amendment or are traversed by argument below.

Rejection of Claims 1-3 under 35 U.S.C. §103(a).

The Examiner asserted an obviousness rejection of claims 1 and 2 under 35 U.S.C. § 103(a), as being unpatentable over Abdel-Rehim in view of Cronin (U.S. 5,064,418). Claim 3 is also rejected as unpatentable over Abdel-Rehim in view of Cronin and further in view of JP 10-10104 (Takii et al.); and also over Abdel-Rehim in view of Cronin and further in view of Reinhardt et al.

The Applicant respectfully asserts that the claims are non-obvious and patentable.

The Examiner in the Office Action retains the position that a modification of the syringe with the arrangement of Cronin would have been obvious. However, the Applicant provides that the Examiner has at least not accounted for the following: (1) the two references belong to two entirely different fields of art. Abdel-Rehim discloses a solid phase microextraction (SPME) device whereas Cronin discloses a filtering device. Aside from the fact that both devices have to do with syringes that have nothing in common which would not suggest a combination whatsoever to one skilled in the art; and (2) the suggested combination would still not lead a person of skill in the art to the claimed subject matter because it would not be capable of extracting a volatile component from a gaseous sample.

Abdel-Rehim discloses an SPME device for the preparation of liquid samples. The advantage of this device over the so-called needle trap devices is seen in the fact that with the so-called packed syringe "the problem of the unstableness in the solid phase material of the coated fiber and that the coated fiber is easily damaged are avoided" (p. 2 ll. 29-31). Accordingly, it would definitely not make any sense to reverse the alleged improvement by putting the solid phase back into the needle. It would also make even less sense to refer to Cronin for this reversion of a supposed

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improvement because Cronin discloses a syringe filter rather than a package of absorbent material.

The system disclosed in Abdel-Rehim is capable of extracting solutes, i.e. molecules of interest, from liquid samples by collecting them on the surface of an absorbent located on the bottom of the glass barrel of a syringe. In this configuration the package of absorbent cannot be heated to assist the desorption. Therefore, the solute has to be desorbed with a comparatively high amount of solvent, i.e. at least 100 μ l. In practically all gas chromatographic systems only 1-2 μ l can be injected. This is because a liquid solvent injected in a gas chromatograph has to be evaporated in the injector. Injecting more than 2 μ l would overload the system. The thought of injecting 100 μ l of solvent into a gas chromatograph would never occur to one skilled in the art. Accordingly, as opposed to the Examiner's opinion it is clear that Abdel-Rehim is limited to liquid SPME and would not be capable of being used with a gaseous sample.

On page 3 of the Office Action, and again on page 4, the Examiner alleges that one skilled in the art would have been motivated to modify the syringe of Abdel-Rehim with the arrangement of Cronin by the advantage of "allowing for more samples to be collected for greater accuracy". This argument does not make sense because the collection of more samples could definitely never have been a motivation for the suggested modification, because for more sample one would just use a bigger syringe.

The main difference, however, lies in the fact that Abdel-Rehim with or without the modification with Cronin would always need a solvent to transfer the solute to an analytical device as opposed to the method and device of the present invention wherein thermal desorption is possible which means that no solvent is needed to transfer the components collected on the active surface of the packing to a gas chromatograph.

Clearly Abdel-Rehim is not the closest art to the present invention. The claimed invention is related to so-called needle trap devices for SPMC such as those disclosed in the prior art mentioned in the introduction of the present application

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(U.S. 2001/0032521) or in the international search report. These devices allow the collection of solutes from a gaseous phase. In view of its limitation to liquid samples, Abdel-Rehim is far more remote than these references.

However, while the devices disclosed in these references may be capable of sampling gaseous solutes, they are not very efficient because their absorbent surface is small: an SPMC fiber has a surface of ca 10mm² whereas the claimed device can work with a much more effective packing material such as Tenax TA, or which e.g. 44mg have an active surface of 1.5m².

Clearly, the present invention is non-obvious and patentable over the references, in whole or in combination. The Applicant respectfully requests, therefore, that the Examiner withdraw this rejection of the claims.

CONCLUSION

In light of the foregoing response, all the outstanding objections and rejections are considered overcome. Applicant respectfully submits that this application should now be in condition for allowance and respectfully requests favorable consideration.

Respectfully submitted,

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Date



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